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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of:)

Allocation of Spectrum Below)
5 GHz Transferred from Federal)
Government Use)

ET Docket No. 94-32

REPLY COMMENTS OF MOTOROLA, INC.

Motorola Inc. ("Motorola") hereby submits its reply to comments filed in response to the Notice of Proposed Rulemaking ("Notice") in the above-captioned proceeding.¹ Based on the record, it is clear that the Commission must abandon its original proposals to auction the 50 MHz of immediately available federal spectrum for "generic" non-federal uses and should instead seek to identify specific allocations for this spectrum. In so doing, Motorola believes that the record provides compelling evidence of the need to allocate additional spectrum for advanced private land mobile services and to further support the continued development of Part 15 spread spectrum devices. Thus, Motorola reiterates its recommendations that spectrum be allocated for private land mobile operations and that the FCC take no action that reduces the utility of the entire 2400-2483.5 MHz band for Part 15 spread spectrum operations. In so doing, Motorola recommends a coordinated approach that considers the entire 200 MHz of spectrum to be transferred when addressing any competing spectrum requests.

¹ FCC 94-272 (released Nov. 8, 1994).

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I. INTRODUCTION

In this proceeding, the FCC is soliciting public input on the potential applications for 50 MHz of spectrum slated for reallocation from Federal Government use to the private sector. This reallocation has been mandated by Congress in Title VI of the Omnibus Budget Reconciliation Act of 1993 ("OBRA") which compels the NTIA to review Federal Government spectrum usage so that it may recommend the reallocation of at least 200 MHz of Federal spectrum below 5 GHz to non-government users.² This instant proceeding focuses on the three frequency bands totaling 50 MHz that the NTIA would reallocate immediately to the private sector; namely the 2390-2400 MHz, 2402-2417 MHz and the 4660-4685 MHz band.

In the subject Notice, the FCC proposed to allocate each of these three bands for generic fixed and mobile use and to issue licenses using its competitive bidding policies. The Commission reasoned that market forces can best determine the most beneficial use of this spectrum. In its opening comments, Motorola took issue with the preliminary conclusions of the Notice. First, Motorola stated that the allocation to generic services ignores the critical need expressed by private users, particularly the advanced private land mobile applications discussed in the COPE Petition. Second, Motorola noted that creating new licensed uses in the 2.4 GHz band would jeopardize investment in that band by innovative Part 15 spread spectrum devices. Third, Motorola argued that the proposal to use auctions to allocate spectrum for generic services would contravene the Commission's competitive bidding

² Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, § 6001, 107 Stat. 312, 379-401 (1993), *to be codified at* 47 U.S.C. §§ 111-117.

authority and would impermissibly substitute the marketplace for the Commission's independent obligation to make allocations that advance the public interests. As an alternative to the proposals of the Notice, Motorola recommended that the FCC pair the 2300-2310 MHz band with the 2390-2400 MHz band and allocate this spectrum for advanced private land mobile services and that the FCC protect Part 15 operations in the 2402-2417 MHz band from any licensed use of that spectrum that may have a higher allocation priority.³

Overall, Motorola's comments were echoed by a majority of the eighty parties that filed comments in this proceeding. For example, only three parties indicated any support for the proposed generic services allocation⁴ while sixteen other commenters concurred with Motorola's finding that this "allocation by auction" aspect of the Commission's proposal would be unlawful.⁵ In addition, numerous parties supported spectrum allocations for private land mobile use by discussing specific land mobile communications requirements not satisfied by existing allocations.⁶ Also, thirty commenters urged the Commission to protect

³ Motorola also addressed the utility of the 380-400 MHz and 1710-1760 MHz bands to help satisfy the spectrum requirements of public safety, public service and industrial users. As noted, these bands would be more attractive for such use if certain regulatory issues concerning the timing of their availability and sharing with Federal users could be more positively addressed.

⁴ Comments of Pacific Bell Mobile Systems, Wireless Cable Association and American Telecasting.

⁵ See, e.g., Comments of the County of Los Angeles, the Comments of the Wireless Information Networks Forum, Comments of Compaq, Comments of Forest Industries Telecommunications, Comments of American Petroleum Institute, and Comments of APCO.

⁶ See, e.g., Comments of the Utilities Communications Council, PCIA, TIA, Manufacturers Radio Frequency Advisors, Industrial Telecommunications Association, Association of American Railroads, APCO, and Forest Industry Telecommunications.

Part 15 use of the 2402-2417 MHz band specifically and the entire 2440-2483.5 MHz band in general.⁷ At the very least, the breadth of opposition contained in the comments should lead the Commission to conclude that its original proposals do not adequately serve the public interest.

II. THE COMMENTS DEMONSTRATE A NEED FOR ADDITIONAL PRIVATE LAND MOBILE SPECTRUM ALLOCATIONS

In its legislation mandating this spectrum transfer, Congress required the FCC to reach an allocation decision on the bands identified for immediate availability -- and a report addressing the spectrum needs of public safety services -- by February of 1995. In addition, Congress required the FCC to finalize an overall plan for the allocation of the remaining 150 MHz of transferred spectrum to be completed by February of 1996. In so doing, Congress recognized that each of these aspects of the spectrum transfer are inter-related and appropriately directed the FCC to proceed in a thoughtful manner. Motorola agrees with this Congressional direction and therefore urges the Commission to not make any decisions in this proceeding without first considering the needs of public safety users and other private users or how the remaining 150 MHz of transferred spectrum can be used to satisfy any competing spectrum requests identified herein.

Given this framework, Motorola continues to believe that the single greatest unmet spectrum need facing the United States is for advanced private land mobile operations.

⁷ See, e.g., Comments of Apple Computer, Inc., Comments of the Consumer Electronics Group of the Electronic Industries Association, Comments of AT&T Corp., Comments of International Business Machines Corporation, Comments of Metricom and Comments of Norand Corporation.

Existing allocations either contain insufficient quantities of spectrum or are too congested to accommodate the variety of advanced data, video and control applications needed by public safety, public service and industrial entities to improve the overall efficiency and effectiveness of these radio users.

Contrary to the tentative findings of the FCC that private users can purchase service from carrier systems if necessary, the comments of PCIA provide an excellent overview as to why commercial networks do not always satisfy the needs of large private users. To this end, PCIA's comments provide case studies focusing on the overnight package delivery industry, the airline industry, and other large industrial users such as railroads. In reviewing these comments, it is important to note the number of ways that private users -- even those not specifically identified as public safety -- use radio to protect life and property. For example, Northwest Airlines foresees a need for advanced data services that allow for the accurate collection and distribution of an aircraft's DE-ICING information just prior to take-off.⁸ Likewise, United Airlines indicates that advanced video imaging technology would prove useful for aircraft maintenance (*i.e.*, the transmission of a plane's blueprints and other technical specifications to field personnel) and for surveying aircraft/airport incidents.⁹ Westinghouse Communications Services, Inc. reports that it uses private radio frequencies to respond nationwide to problems involving nuclear energy.

In like fashion, the Industrial Telecommunication Association (ITA) points out that industrial users often demand overall system reliability in excess of the capabilities of carrier

⁸ *Id.* at 14.

⁹ *Id.* at 16.

systems.¹⁰ In complete agreement, the Association of Public-Safety Communications Officers (APCO) notes that system reliability often becomes a major concern precisely at the time when communications are most needed such as during major storms, earthquakes or other natural disasters.¹¹ PCIA discusses the interoperable service coverage needs of the railroad industry in desolate prairies and remote mountain areas where only self-maintained, specialized private networks offer adequate coverage.¹² Each of these user groups conclude that rather than relying upon carrier-based systems to address their needs, the FCC must instead allocate spectrum for private users consistent with the goals identified in the COPE Petition. Clearly, the day-to-day activities of all private land mobile users involve a significant degree of public service benefit for which there are no economical alternatives.

Beyond the operational and reliability concerns of carrier-based systems to meet the specialized needs of private users, the comments of PCIA describe the advanced communications needs of the railroad and other industry segments in order to demonstrate that existing land mobile allocations are inadequate to address the industry's existing communications needs.¹³ For example, the railroad industry believes that a variety of video applications are needed to allow remote observations of derailments, especially those involving the spillage of hazardous wastes.¹⁴ Also, the railroad industry would use video

¹⁰ Comments of ITA at 10.

¹¹ Comments of APCO at 7.

¹² Comments of PCIA at 6.

¹³ A similar description of the benefits of emerging private technologies and systems is contained in the COPE Petition which is a part of this proceeding.

¹⁴ Comments of PCIA at 7.

transmissions to provide for remote radio control of trains and utilize wide band data applications to assist in track maintenance and equipment repair.¹⁵ PCIA concludes that access to broad band spectrum will allow the railroad industry to become more efficient and customer responsive. Motorola believes that such goals reflect one of the greatest potential uses of the radio spectrum.

As expected in any spectrum allocation proceeding, alternative and competing uses of this spectrum have been identified. Specifically, a number of telephone wireline carriers seek to allocate the 2300-2310/2390-2400 MHz bands for wireless local loop access.¹⁶ Motorola supports the allocation of spectrum for wireless local loop access but reiterates that the FCC's highest priority is to satisfy the advanced needs of public safety, public service and industrial users. However, if the Commission adopts a coordinated approach to the entire 200 MHz spectrum transfer, Motorola is confident that the needs of both private users and proponents of wireless local loop access can be met. Motorola therefore urges the Commission to further consider this issue and identify immediately appropriate spectrum homes for private users and wireless local loop access. Further, Motorola asks that the Commission examine and clarify its policies on whether wireless local loop access could be accommodated on a primary basis in the 2 GHz broadband PCS allocations. Although PCS spectrum is allocated primarily for mobile operations, this form of fixed, or perhaps portable service, may well fit within the context of PCS's definition of a broad family of services.

¹⁵ Id. at 8.

¹⁶ See, e.g., Comments of Southwestern Bell Telephone Company, Comments of the United States Telephone Association, NYNEX Comments, and Comments of TDS Telecommunications Corp.

Motorola concludes that the need for additional private land mobile spectrum allocations for advanced applications is strongly supported in comments filed in this proceeding and that the FCC should proceed with allocating the 2300-2310 MHz and the 2390-2400 MHz bands as a partial solution for these users. Such an allocation would help resolve the single greatest spectrum deficiency in the U.S. and would help ensure that the NTIA reallocation process is a successful effort. As referenced previously, the 380-400 MHz band and the 1710-1760 MHz could also provide a solution for private users if the Commission, the NTIA and Federal users can positively address the availability and shared use provisions affecting non-government access to these bands.

III. THE COMMISSION SHOULD PROTECT PART 15 OPERATIONS IN THE 2402-2417 MHZ BAND

In its earlier filed comments, Motorola strongly urged the Commission to take no action with respect to the 2402-2417 MHz band that would reduce the utility of this band for Part 15 spread spectrum operations. In so doing, Motorola reminded the FCC of its report to the NTIA that concluded:

installing a licensed service in this band [2402-2417 MHz] may result in a loss to the public of Part 15 spread spectrum communications equipment as well as possibly preventing use of this band for Amateur service operations. The benefits of providing short-range communications via unlicensed low power devices is generally recognized, and interest in such devices is growing.¹⁷

Motorola concluded that in order to protect the best and most valued use of the 2402-2417 MHz band, the Commission should adopt a simple clarification that elevates the status of

¹⁷ Report from the Federal Communications Commission to Ronald H. Brown Secretary, U.S. Department of Commerce Regarding the Preliminary Spectrum Reallocation Report, FCC 94-213, released August 9, 1994, (FCC Report).

Part 15 devices in the 2.4 GHz band to co-primary or adopt a "presumption against interference" that would preclude any licensed operators from unilaterally forcing Part 15 users of the air without justification.

Motorola's position was strongly supported by other manufacturers filing comments in this proceeding. Nearly one-half of the commenters urged the Commission to forego its proposal to auction this spectrum at the expense of continued Part 15 operation. IBM states that reallocation of this band would jeopardize "hundreds of millions of dollars of private industry investments in wireless LANS and similar technologies."¹⁸ In arguing for "co-primary" status for Part 15 devices, AT&T notes that the 2402-2417 MHz band is "well-suited to support wireless communications among the portable computers used by an increasingly mobile work force" and that any "any subsequent Commission action making that band unusable for Part 15 devices would be markedly unfair."¹⁹ The EIA notes that U.S. manufacturers of Part 15 devices have been in the "forefront of developing new technologies" for import to foreign markets but, if forced to abandon this domestic market, "their ability to compete in foreign markets will be threatened."²⁰ Apple notes that the importance of the 2.4 GHz band is heightened due to Commission actions in the 902-928 MHz ISM band.²¹

¹⁸ Comments of IBM at 3.

¹⁹ Comments of AT&T at 2.

²⁰ Comments of the consumer Electronics Group of the Electronic Industries Association at 3,4.

²¹ Comments of Apple Computer, Inc. at 8.

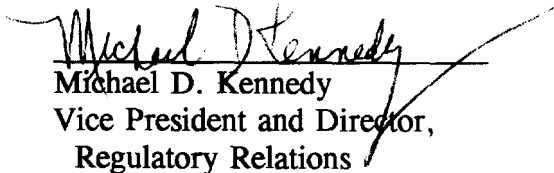
In short, America's leading manufacturers of electronic, computing and radio devices all urge the FCC to take no action that threatens to undermine a competitive, dynamic and innovative industry that provides significant job and export opportunities. The only legitimate request for a new licensed service that references this particular band provides no technical support concerning the compatibility issue with ISM equipment.²² For these reasons, the Commission should determine that best use of the 2400-2483.5 MHz band, including the 2402-2417 MHz band, is for Part 15 spread spectrum devices operating co-equal with ISM devices.

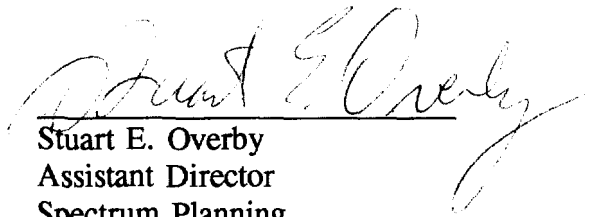
²² Motorola has reviewed the Comments of the Los Angeles Sheriff's Department which, justifiably, seek a spectrum home for public safety airborne video operations and references the 2.4 GHz band. Motorola considers this request as another example of the advanced communications needs facing the private land mobile industry and, once again, urges the Commission to allocate spectrum for this purpose. To the extent that the Sheriff's reference to the 2.4 GHz band in general is specifically targeting 2402-2417 MHz, Motorola is not convinced that this band is appropriate for important public safety purposes given its high noise floor. In Motorola's view, the 1710-1760 MHz or the 2300-2310/2390-2400 MHz bands would provide a more reliable home for such broad band applications.

IV. CONCLUSION

Although the spectrum identified for reallocation will not come without significant technical and operational shortcomings, it still can be used to address significant unmet communications needs. In proposing to allocate this spectrum for "generic" services, the Commission has failed to identify and address these unmet needs. Therefore, based on the record, Motorola recommends that the FCC address this deficiency in its proposal and instead allocate the 2390-2400 MHz band and the 2300-2310 MHz band for private land mobile uses. Furthermore, lacking any information that commercial licensed operations are viable in the 2.4 GHz band, the Commission should abandon any plans to auction this spectrum and should instead protect the vast investments of the Part 15 manufacturing community currently utilizing that band. By performing these two actions, the Commission will be furthering the public interest to the greatest extent possible given the limitations of the spectrum under consideration.

Respectfully Submitted By:


Michael D. Kennedy
Vice President and Director,
Regulatory Relations
Motorola, Inc.
1350 I Street, N.W.
Washington, D.C. 20005
(202) 371-6951


Stuart E. Overby
Assistant Director
Spectrum Planning
Motorola, Inc.
1350 I Street, N.W.
Washington, D.C. 20005
(202) 371-6940

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